almost instantaneously, thus minimizing heat gradients within the spin beam and reducing non-uniform heating of the polymer.

REMARKS

Claims 1-10 remain pending in the present application. The amendment to the specification finds basis in the drawing, Figure 1, and is submitted pursuant to the Examiner's confusion expressed in item 2 of the outstanding Office Action (page 2). The amendment clarifies that the separate planar molten polymer flow streams are formed in separate distribution manifolds, as depicted in Figure 1 and its accompanying description at paragraph 0027. No new matter is added.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-9 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Applicants traverse this basis for rejection and respectfully requests reconsideration and withdrawal thereof.

Initially, the Examiner states that it is "unclear what range of width/height ratios constitute a planar stream". Applicants submit that the particular ratios are unimportant, and that the skilled artisan would certainly understand the meaning of "planar molten flow stream" as defined at paragraph 0014 of the specification and as depicted in Figure 1.

Applicants believe that the amendment to paragraph 0020 clarifies that each distribution manifold, i.e. the coathanger manifolds, act to form each molten polymer flow stream into separate planar molten polymer flow streams. This is made even more clear at paragraph 0027, wherein Applicants state:

> The molten polymers are transported to two coat hanger distribution manifolds, 6 and 8, which direct the molten polymer flow streams into two planar molten polymer flow streams.

The separate planar molten polymer flow streams are then passed through filters at the bottom of the coathanger manifolds, as understood by the Examiner, and then into a plurality of passages, 13 and 14, connected to the spinning orifices, 16 (Figure 1).

Rejection under 35 U.S.C. § 103(a)

Claims 1-10 stand rejected under 35 U.S.C. § 103(a) as being obvious over Hills (U.S. Patent no. 5,162,074) in view of Gröten et al. (U.S. Patent no. 6,402,870)

and Buehning et al. (U.S. Patent no. 4,889,476). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Hills discloses a method and melt spinning apparatus for extruding a wide variety of plural-component fiber configurations with a spin pack that utilizes one or more disposable distributor plates (Abstract). The Hills spin pack comprises a top plate 11; a screen support plate 12; a metering plate 13; an etched distributor plate 14; and a spinneret plate 15 (col. 9, lines 1-4). As is recognized by the Examiner, the Hills spin pack and process differs from the apparatus and process of the present claims in that the molten polymers are filtered (Hills, Fig. 4, items 22 and 23) upstream of the coathanger distribution manifolds (Fig. 3, items 29a and 30a and Fig. 4, item 29); and in that the multiple component fibers are formed within the Hills spinneret plate 15, within the spinneret orifice inlet holes 41.

Groten et al. disclose a process for making multi-segmented filaments wherein first and second polymers are extruded through separate spin orifices (Fig. 1, items 140 and 145) and connected by adhesion contact to form the multi-segmented filament (Abstract). Groten et al. are absolutely silent about filtering, and about the manner in which the molten polymers are distributed to the spinning orifices, 140 and 145, in die plate 100.

Buehning et al. disclose a melt blowing die and air manifold for making monocomponent meltblown fibers, wherein the die has a coathanger distribution manifold 86, which constricts to a minimum width 96, and then widens into a prism-shaped void 86a, through which the molten material passes prior to being filtered by filter screen 114 (Fig. 2 and col. 4, line 34, to col. 5, line 43). Buehning et al. fail to disclose or suggest forming multiple component fibers and consequently fail to disclose the use of multiple coathanger distribution manifolds and coalescence of multiple polymers after exiting the spinning orifices.

The Examiner opines that it would have been obvious to modify the Hills apparatus to form multiple component polymer filaments outside the die, in order to achieve the benefits described by Groten et al., i.e. so that the complex shape of the polymer filaments would have a clear outline. (Outstanding Office Action, item 4, paragraph 2, page 3). Applicants respectfully submit that the Examiner's proposed combination ignores the important question of "how".

Hills describes in great detail a carefully engineered spin pack, requiring at least seven detailed figures and eighteen or more columns of text to describe to those of skill in the art. Hills' design is clearly directed toward pre-coalescence of his multiple component fibers and he provides no hint or suggestion as to how his detailed design might be modified to permit post-coalescence of such fibers.

Groten et al. disclose only a die plate 100 which is useful in forming multiple component fibers in a post-coalescent manner, and fail to propose a manner in which that die plate could be substituted into the Hills spin pack in order to achieve the benefits of the Groten et al. disclosure. Accordingly, the prior art cannot be said to have motivated the skilled artisan to modify the Hills device in the manner suggested by the Examiner.

Further, the Examiner has failed to propose a manner of modifying the Hills spin pack with the die plate of Groten et al., which would successfully achieve the advantages proposed by Groten et al., except to say that it would have been desirable and therefore obvious to do so.

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner's obviousness rejection fails to meet the requirements set forth in *In re Vaeck*, and therefore fails to establish a *prima facie* case of obviousness as to the present claims.

First, while Groten et al. disclose that a desirable advance can be had by forming multiple component fibers outside of the extrusion die, there is no suggestion within the disclosure as to how to accomplish that goal with the Hills spin pack; and the Examiner fails to suggest how to achieve such goal. That is, how would the skilled artisan modify the Hills spin pack to achieve the goal set forth in Groten et al.?

As stated above, no such suggested modification has been proposed, either by the Examiner or by the prior art.

Second, assuming *arguendo* that some method of modifying the Hills apparatus according to the Groten et al. disclosure could be divined, would the skilled artisan have a reasonable expectation of success in applying such a modification? In view of the lack of a suggestion as to how to modify the Hills apparatus according to the Groten et al. disclosure, evaluation of the reasonable expectation of success question is problematic. However, Applicants submit that since Hills is directed to formation of microfibers (col. 6, line 66 to col. 7, line 30), and Groten et al. is directed to formation of fibers 5 to 10 times larger (col. 5, lines 39-42; col. 6, lines 37-39), it seems unlikely that any proposed modification of Hills in view of Groten et al. would be successful in obtaining the microfibers according to Hills.

Third, neither of Hills nor Groten et al. suggest modifying the location of a filter, to obtain filtering of a planar molten polymer stream, as claimed in the present independent claims 1, 5 and 10. Accordingly, the proposed combination of Hills and Groten et al. cannot be said to disclose each and every limitation of the claims, required by *Vaeck*. No *prima facie* case of obviousness can be sustained by the mere combination of these two references.

To address this insufficiency, the Examiner directs attention to Buehning, which discloses a melt blowing die. Applicants submit that such combination would not have been obvious to those skilled in the art at the time of the invention for at least two reasons.

First, melt blowing according to Buehning is non-analogous art as compared to the melt-spinning art disclosed in Hills and Groten et al. Melt blowing of molten polymer forms relatively short, discontinuous fibers, whereas melt-spinning as disclosed by Hills and Groten et al. forms continuous fibers.

Second, Hills describes melt blowing at col. 2, lines 4-12, and points out that fibers formed by melt blowing are 'short' and 'irregular', thus essentially teaching away from melt blowing as a suitable manner of obtaining the fibers desired by Hills.

Accordingly, the skilled artisan would not have looked to Buehning for motivation to modify Hills and/or Groten et al.

Withdrawal of the rejection for failure to present a *prima facie* case of obviousness is requested.

Respectfully submitted,

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TWS:fgl
Enclosure

Amendment with Changes Indicated

In the following amendment, insertions are indicated by underlining and deletions by bracketing.

In the specification:

Please amend paragraph 0020 as follows:

[0020] The polymers are melted into separate molten polymer flow streams using conventional means, such as extruders, and forced through [a] separate distribution [manifold] manifolds to produce separate planar molten polymer flow streams. The distribution [manifold arranges] manifolds arrange the molten polymer flow streams into long thin planes of molten polymer, wherein the polymer all along the plane has nearly the same heat history and residence time. It is optimal for the molten polymer stream to have as much as possible the same heat history and residence time in order to minimize degradation of the polymer contacting the manifold walls, which tends to form solidified particles which can plug the spinneret orifices downstream, and/or form less uniform spun filaments. A common distribution manifold is a coat hanger manifold, which is named as such due to its general resemblance (in longitudinal cross section) in form to a coat hanger. Due to the long, thin form of the coat hanger distribution manifold, heat from the walls of the melt spinning beam is transferred through the molten polymer almost instantaneously, thus minimizing heat gradients within the spin beam and reducing non-uniform heating of the polymer.

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